Alqalam Journal of Medical and Applied Sciences. 2026;9(5):1301-1304
https://doi.org/10.54361/ajmas.269524

Original article

Is Routine Histopathology After Tonsillectomy Necessary? A Retrospective Study of Pediatric and Adult Populations

Nagat Belkasem[1], El Sharif Khalil[2]*, Hanan El Daffri[3]

[1]*Department of Otolaryngology, Omar Almukhtar University, Albayda, Libya*
[2]*Department of Pathology, Omar Almukhtar University, Albayda, Libya*
[3]*Department of Histology, Omar Almukhtar University, Albayda, Libya*
Corresponding email. elsharif.khaalil@omu.edu.ly

Abstract
Tonsillectomy is one of the most common surgical interventions in otolaryngology; however, the necessity of routine histopathological examination remains controversial. This retrospective cross-sectional study included 160 tonsillectomy specimens from 80 patients who underwent surgery between January 2024 and December 2025 at Al-Bayda Medical Center, Libya. Demographic and clinical variables were analyzed and correlated with histopathological results. The majority of patients were in the pediatric age group (75%), in whom reactive lymphoid hyperplasia was the predominant finding (98.3%), with no malignancies detected. In contrast, adult patients demonstrated a higher incidence of significant pathological findings, including non-Hodgkin lymphoma (10%) and squamous cell carcinoma (15%), particularly among individuals with risk factors such as heavy tobacco smoking. These findings highlight a clear distinction between pediatric and adult populations. Routine histopathological examination may not be necessary in low-risk pediatric cases; however, it remains valuable in adult and high-risk patients for early detection of occult malignancies. A selective, risk-based approach is recommended to optimize clinical outcomes and resource utilization.
Keywords. Tonsillectomy, Histopathology, Lymphoid Hyperplasia, Tonsillar Malignancy.

Introduction

The palatine tonsils are two lymphoid structures located in the oropharynx and are primarily composed of B lymphocytes. Together with the adenoids, they contribute significantly to immune defense, especially during childhood. Throughout life, these lymphoid tissues are exposed to various conditions, such as chronic and recurrent acute inflammation, peri-tonsillar abscesses, and benign or malignant neoplasms [1-3]. Tonsillectomy, the surgical removal of palatine tonsils, is the most frequently performed surgery in the field of otolaryngology worldwide.

It is performed in both pediatric and adult age groups for primary diagnostic or therapeutic purposes, or as a part of other surgical procedures [4-6]. A significant body of research indicates that routine histopathological assessments yield few significant diagnoses; furthermore, they increase the workload for pathologists, impose a financial burden on patients, and may delay management plans [7-10]. On the other hand, previous studies suggest that routine microscopic analysis of tonsillectomy samples is vital for identifying occult malignancies and implementing early management strategies [11-12]. Our retrospective study aims to evaluate the clinical significance of routine histopathological examination of tonsillectomy specimens.

Methods

This retrospective, cross-sectional study reviewed the histopathological reports of all patients who underwent tonsillectomy between January 2024 and December 2025 at the Al Bayda Medical Center Laboratory in Libya. A total of 160 histopathological specimens were included. In this research, the study population consisted of all bilateral tonsillectomy specimens from patients of any age or gender. The study accounted for both isolated tonsillectomies and combined adenotonsillectomies specimens, regardless of the underlying surgical indications or methods.

Laboratory request sheets and copies of the histological reports were reviewed and categorized based on clinical parameters, including age, gender, tobacco and alcohol consumption, cervical lymphadenopathy, and history of weight loss. Exclusion criteria consisted of patients with a preoperative diagnosis of malignancy determined through clinical or radiological assessment, and those whose tonsillectomy was performed as part of an existing oncological treatment protocol. Statistical analysis was performed using the SPSS software.

Results

A total of 160 specimens, obtained from 80 patients undergoing bilateral tonsillectomy, were subjected to histopathological assessment during the review period. The cohort's ages ranged from 5 to 46 years; the sample was predominantly pediatric, with 75% of participants aged 5 to 18 years, and the remaining 25% falling into the 19-46 adult age range. Regarding gender distribution, the male-to-female ratio was 1.96:1,

Received*: 13-03-2026 -* ***Accepted****: 10-05-2026 -* ***Published****: 17-05-2026*

showing a notable male predominance of 66.2% (n=106) compared to 33.8% female (n=54). of the total (Table 1).

Table 1. Demographic Characteristics of the tonsillectomy samples

Variables	Values
Total cases, n (%)	80 (100%)
Mean age (years)	5 – 46 (10.3 ± 4.3)
Gender	
Male, n (%)	53 (66.2%)
Female, n (%)	27 (33.8%)

Histopathological characteristics of the pediatric age group

This age group consisted of 60 patients (45 males and 15 females), yielding a total of 120 tonsillectomy specimens. Histopathological analysis identified reactive lymphoid hyperplasia in 118 specimens (98.3%), while 2 cases (1.7%) exhibited reactive lymphoid hyperplasia concurrent with actinomycosis. No evidence of malignancy was observed in any of the samples (Figure 1).

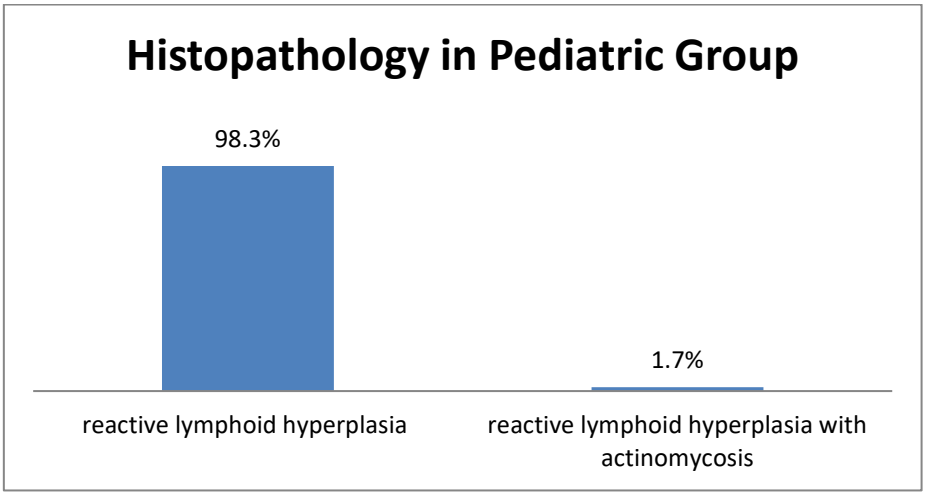

Figure 1. Histopathological tonsillectomy patterns, illustrating the significantly higher prevalence of reactive lymphoid hyperplasia relative to reactive lymphoid hyperplasia concurrent with actinomycosis

Clinical characteristics of the adult age group

This age group consisted of 20 patients (8 male and 12 female), who provided 40 tonsillectomy specimens (16 samples from males and 24 samples from females). Twenty-six samples revealed reactive lymphoid hyperplasia (65%), four showed reactive lymphoid hyperplasia with actinomycosis (10%), four were diagnosed as non-Hodgkin lymphoma (10%), and six samples were diagnosed as squamous cell carcinoma (15%). In the histopathological report sheets of the five patients diagnosed with malignancy, as bilateral involvement of both tonsils; three patients were heavy tobacco smokers, and two had a history of marked weight loss. There was no history of alcohol consumption, no family history of oropharyngeal tumors, and no gross lesions were found on office examination (unilateral enlargement or ulceration) (Figure 2).

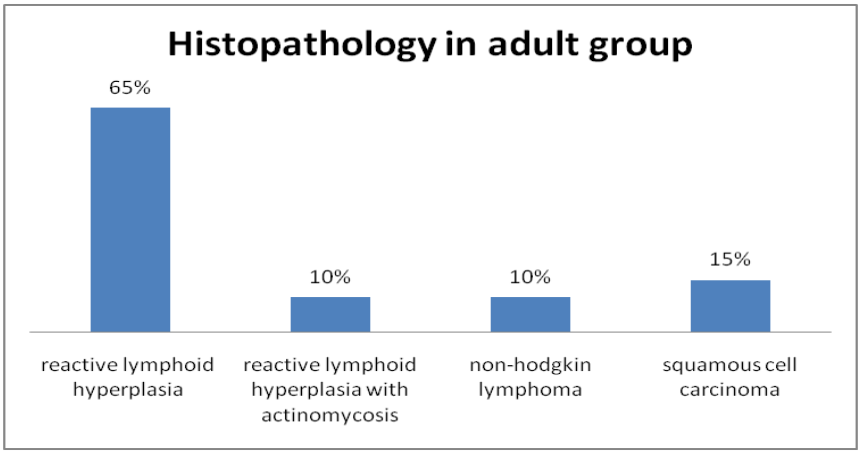

Figure 2. Frequency of histopathological patterns in adult tonsillectomy specimens. The majority of specimens (65%) exhibited benign reactive lymphoid hyperplasia, significantly outnumbering malignant findings and infectious conditions

Received*: 13-03-2026 -* ***Accepted****: 10-05-2026 -* ***Published****: 17-05-2026*

Discussion

This study evaluated the histopathological findings of tonsillectomy specimens and assessed the necessity of routine histopathological examination in both paediatric and adult populations. In the present study, the majority of patients were in the paediatric age group (75%), which is consistent with the global trends, as tonsillectomy is more commonly performed in children due to recurrent infections and airway obstruction. Reactive lymphoid hyperplasia was the most frequent histopathological finding, particularly among paediatric patients (98.3%), with no cases of malignancy detected in this group. These findings are in agreement with several previous studies, including Kandemir et al. [13], Al Duhirat et al. [14], and Sudhakar et al. [15], all of which reported an absence of malignancy in routine tonsillectomy specimens. This consistency across multiple studies reinforces the notion that the likelihood of detecting unexpected malignancy in paediatric and low-risk patients is extremely low. Large-scale studies further support this observation.

Al Duhirat et al. analysed over 1800 routine tonsillectomy cases and found no unexpected malignancies, concluding that routine histopathological examination may not be necessary in the absence of clinical suspicion [14]. Similarly, Sudhakar et al. reported no evidence of neoplasia in 100 cases, despite identifying common inflammatory features such as reactive lymphoid hyperplasia and bacterial colonization [15]. These findings suggest that routine histopathological examination in low-risk cases might not be a cost-effective or clinically necessary practice. However, other studies, such as Modh et al., emphasize the diagnostic value of histopathological examination in confirming clinical diagnoses and identifying associated conditions like actinomycosis. This highlights that, although malignancy detection is rare, histopathological analysis may still provide additional clinical insights beyond excluding cancer [12]. In contrast to those findings, the present study demonstrated a notable proportion of malignancies in the adult population, including non-Hodgkin lymphoma (10%) and squamous cell carcinoma (15%). This disparity underscores the importance of distinguishing between paediatric and adult populations when evaluating the necessity of routine histopathological examination. One possible explanation for this discrepancy is the variation in study design. Many previous studies excluded patients with clinical suspicion of malignancy [14,15], whereas the present study included all tonsillectomy specimens regardless of clinical presentation. This broader inclusion criterion may increase the likelihood of detecting malignancy and provide a more comprehensive assessment of real-world clinical practice. Additionally, the role of risk factors must be considered. In this study, most adult patients diagnosed with malignancy had a history of heavy tobacco use, a well-established risk factor for oropharyngeal cancers.

Interestingly, despite the presence of malignancy, not all cases exhibited clear clinical warning signs such as ulceration or marked asymmetry. This finding contrasts with the results of Al Duhirat et al., where malignancies were only identified in patients with evident clinical suspicion, including tonsillar asymmetry, visible lesions, and cervical lymphadenopathy. This discrepancy suggests that reliance solely on clinical assessment may not always be sufficient, particularly in adult patients, where malignancy may occasionally present without classical features. Therefore, limiting histopathological examination only to clinically suspicious cases may carry a risk of missed diagnoses. The presence of actinomycosis in both paediatric and adult groups in this study is consistent with findings reported by Modh et al. and other studies [14,15], where it is commonly associated with chronic inflammatory conditions. Although often considered incidental, its detection may reflect chronic infection and warrants further evaluation. Overall, the findings of this study support a selective, risk-based approach to histopathological examination. While routine examination may not be necessary in paediatric patients without risk factors, it remains highly recommended in adult patients due to the higher incidence of malignancy and the potential for clinically occult disease. Furthermore, histopathological evaluation continues to play a valuable role in confirming diagnoses and identifying associated pathological conditions.

Conclusion

In conclusion, this study demonstrates a significant divergence in the prevalence of malignancy within tonsillectomy specimens across different age cohorts. While malignant pathologies were absent in the paediatric population, a notable proportion of adult cases revealed malignant lesions, including non-Hodgkin lymphoma and squamous cell carcinoma. These findings, supported by the current literature, suggest that routine histopathological analysis of tonsillectomy specimens in paediatric patients without clinical risk factors may not be necessary. However, in adult patients, such evaluation remains imperative due to the higher risk of malignancy and the potential for clinically occult disease. Consequently, a selective, risk-based approach is recommended, where histopathological examination is guided by patient age, clinical presentation, and associated risk factors such as tobacco use. This approach could help optimize resource utilization while maintaining patient safety and diagnostic accuracy.

Limitations

This study has several limitations that should be considered. First, the relatively small sample size, particularly in the adult group, may limit the generalizability of the findings. Second, the retrospective design of the study may introduce selection bias and limit the availability of complete clinical data. Finally, the

Received*: 13-03-2026 -* ***Accepted****: 10-05-2026 -* ***Published****: 17-05-2026*

inclusion of all tonsillectomy cases, regardless of clinical suspicion, may have influenced the observed prevalence of malignancy.

Recommendations

Based on the findings of this study, the following recommendations can be made: Routine histopathological examination could be omitted in low-risk paediatric patients without clinical suspicion or pre-existing risk factors. Routine histopathological evaluation remains mandatory for all adult patients due to the increased incidence of occult malignancy. Clinical risk assessment should be prioritized, focusing on factors such as tobacco use, tonsillar asymmetry, and systemic symptoms. Further large-scale, multicenter prospective studies are warranted to validate these findings and assist in establishing standardized international guidelines.

Conflicts of Interest

There are no personal, financial, or professional conflicts of interest to declare.

References

1. Dell'Aringa AR, Juares AJ, Melo CD, Nardi JC, Kobari K, Perches Filho RM. Histological analysis of tonsillectomy and adenoidectomy specimens—January 2001 to May 2003. Rev Bras Otorrinolaringol. 2005;71:18–22.
2. Ikram M, Khan MA, Ahmed M, Siddiqui T, Mian MY. The histopathology of routine tonsillectomy specimens: results of a study and review of literature. Ear Nose Throat J. 2000 Nov;79(11):880-2.
3. Zhang PC, Pang YT, Loh KS, Wang DY. Comparison of histology between recurrent tonsillitis and tonsillar hypertrophy. Clin Otolaryngol Allied Sci. 2003 Jun;28(3):235-9.
4. Bluestone CD. Current indications for tonsillectomy and adenoidectomy. Ann Otol Rhinol Laryngol. 1992 Jan;101(1_suppl):58-64.
5. Rebechi G, Pontes TE, Braga EL, Matos WM, Rebechi F, Matsuyama C. Are histologic studies of adenotonsillectomy really necessary? Int Arch Otorhinolaryngol. 2013 Oct;17(04):387-9.
6. Mitchell RB, Archer SM, Ishman SL, Rosenfeld RM, Coles S, Finestone SA, et al. Clinical practice guideline: tonsillectomy in children (update). Otolaryngol Head Neck Surg. 2019 Feb;160:S1-42.
7. Hobbs EA, Hanson JA, Nicholas RG, Johnson BR, Hawley KA. Gross pathology of routine pediatric tonsillectomy specimens: optimizing the value of patient care. Otolaryngol Head Neck Surg. 2019 Feb;160(2):339-42.
8. Damjanov I, Vranic S, Skenderi F. Does everything a surgeon takes out have to be seen by a pathologist? A review of the current pathology practice. Virchows Arch. 2016 Jan;468(1):69-74.
9. Randall DA, Martin PJ, Thompson LD. Routine histologic examination is unnecessary for tonsillectomy or adenoidectomy. Laryngoscope. 2007 Sep;117(9):1600-4.
10. Varute VP, Mohite AA, Mane RS, Patil BC, Tadekar GM, Kundu D, et al. Routine histopathological examination in patients of adenotonsillectomies: evaluation of its necessity. Int J Otorhinolaryngol Clin. 2023 Mar 20;14(3):82-4.
11. Felix F, Gomes GA, Souza BP, Cardoso GA, Tomita S. Evaluation of the utility of histopathologic exam as a routine in tonsillectomies. Rev Bras Otorrinolaringol. 2006;72:252-5.
12. Modu N, Khilnani AK, Lanjewar D. Clinico-histopathological evaluation of tonsillectomy specimens at a tertiary care hospital. Int J Otorhinolaryngol Head Neck Surg. 2023 Jul;9(7):552-5.
13. Kandemir S, Pamuk G, Yigit T. Evaluation of the necessity of routine histopathological examination in tonsillectomy and/or adenoidectomy operations. Ann Med Res. 2023;30(7):826-830.
14. Al Duhirat E, Hammoud R, Emam F, Al-Qudimat AR, Shaikh A, Alhyari A, et al. Tonsillectomy Under the Microscope: Is Routine Histopathological Analysis Necessary? Cureus. 2024 Oct 10;16(10):e71212.
15. Sudhakar PJ, Harini MU, Yugandhar GA. Histopathological analysis of tonsillectomy specimens in our hospital - a retrospective study. Asian J Pharm Clin Res. 2022;15(10):115-117.

Received*: 13-03-2026 -* ***Accepted****: 10-05-2026 -* ***Published****: 17-05-2026*